

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method for managing a defective area on a recording medium of writable once type, the recording medium including a data area, the data area including at least one spare area, the method comprising:

(a) detecting an existence of a defective area within the data area of the recording medium ~~once data are written onto the data area in a data writing operation~~;

(b) writing data written in the defective area onto ~~another area of the data area~~ a replacement area of the at least one spare area if the defective area is detected; and

(c) writing, ~~onto at least one defect management area on the recording medium~~, defect management information associated with the defective area onto at least one defect management area on the recording medium,

wherein the at least one defect management area on the recording medium is part of the at least one spare area within the data area of the recording medium.

2. (Original) The method as claimed in claim 1, further comprising:

(d) writing clusters of data onto a first recording area of the data area during a first data writing operation, each cluster of data being written to one of a plurality of cluster areas of the first recording area; and

wherein the detecting step (a) includes:

for each of the cluster areas, examining data written therein and determining whether the corresponding cluster area is defective based on the examination result.

3. (Currently amended) The method as claimed in claim 2, wherein the writing step (b) includes:

writing data written on a corresponding cluster area of the first recording area, onto ~~another~~ a replacement cluster area of the ~~data~~ at least one spare area, if the determining step determines that the corresponding cluster area is defective.

4. (Original) The method as claimed in claim 3, wherein the writing step (c) includes:

after the writing step (b) is completed for the first data writing operation, writing defect management information associated with all the defective cluster areas of the first recording area, onto the at least one defect management area on the recording medium.

5. (Original) The method as claimed in claim 1, wherein in the writing step (c), the defect management information includes a plurality of defect lists, each of the defect lists associated with one of a plurality of recording areas of the data area.

6-8. (Cancelled)

9. (Currently amended) The method as claimed in claim 6- 5, wherein each of the defect lists contains a present defect list and any previous defect list, such that each of the defect lists becomes a cumulative defect list.

10. (Cancelled)

11. (Currently amended) The method as claimed in claim ~~10-1~~, wherein the ~~pre-~~
~~assigned~~ at least one spare area is either an inner spare area located at a front part of the
data area, or an outer spare area located at a rear end of the data area.

12. (Cancelled)

13. (Currently amended) The method as claimed in claim ~~10-1~~, wherein in the
writing step (c), the defect management information includes a plurality of defect lists,
~~each of the defect lists associated with one of a plurality of recording areas of the data~~
~~area~~, and wherein each of the defect lists contains a present defect list and any previous
defect list such that each of the defect lists becomes a cumulative defect list.

14. (Cancelled)

15. (Currently amended) The method as claimed in claim 1, wherein the defect
management information includes positional information on the defective area and
positional information on the ~~another~~ replacement area of the ~~data~~ at least one spare area
used in the writing step (b).

16. (Original) The method as claimed in claim 1, further comprising:

(e) writing disc definition structure information onto a lead-in area of the recording
medium, the disc definition structure information containing positional information
associated with the defect management information.

17. (Original) The method as claimed in claim 1, wherein the recording medium is a Blu-ray Disc Write Once (BD-WO).

18-20. (Cancelled)

21. (Currently amended) A recording medium of writable once type, comprising:
a data area including a recording area[[,]] and at least one spare area ~~a replacement area, each of the at least one spare area including a replacement area and at least one a~~
defect management area,

~~wherein an existence of a defective area within the data area of the recording medium is detected after data are written onto the recording area during a data writing operation,~~

~~data written in the defective area are written onto the replacement area if the defective area is detected, and~~

wherein if a defective area within the recording area is detected, data written in the defective area are written onto the replacement area within the at least one spare area, and

defect management information associated with the defective area is written onto the ~~at least one~~ defect management area within the at least one spare area.

22. (Original) The recording medium as claimed in claim 21, wherein the recording area includes a plurality of cluster areas,

wherein clusters of data are written onto the recording area during a first data writing operation, each cluster of data being written to one of the cluster areas of the recording area, and

for each of the cluster areas, data written therein is examined to determine whether the corresponding cluster area is defective.

23. (Currently amended) The recording medium as claimed in claim 22, wherein data written on a corresponding cluster area of the recording area, is written onto ~~another~~ a replacement cluster area of the data at least one spare area, if the corresponding cluster area is determined to be defective.

24. (Currently amended) The recording medium as claimed in claim 23, wherein defect management information associated with all the defective cluster areas of the recording area is written onto the ~~at least one~~ defect management area ~~on the recording medium~~ of the at least one spare area.

25. (Original) The recording medium as claimed in claim 21, wherein the defect management information includes a plurality of defect lists, each of the defect lists associated with one of a plurality of recording areas of the data area.

26-28. (Cancelled)

29. (Currently amended) The recording medium as claimed in claim ~~26~~ 24, wherein each of the defect lists contains a present defect list and any previous defect list, such that each of the defect lists becomes a cumulative defect list.

30. (Cancelled)

31. (Currently amended) The recording medium as claimed in claim ~~30~~ 21, wherein the ~~pre-assigned~~ at least one spare area is either an inner spare area located at a front part of the data area, or an outer spare area located at a rear end of the data area.

32. (Cancelled)

33. (Currently amended) The recording medium as claimed in claim ~~30~~ 21, wherein the defect management information includes a plurality of defect lists, ~~each of the defect lists associated with one of a plurality of recording areas of the data area,~~ and wherein each of the defect lists contains a present defect list and any previous defect list such that each of the defect lists becomes a cumulative defect list.

34. (Cancelled)

35. (Currently amended) The recording medium as claimed in claim 21, wherein the defect management information includes positional information on the defective area and positional information on the replacement area of the ~~data~~ at least one spare area.

36. (Original) The recording medium as claimed in claim 21, further comprising:
a lead-in area located outside of the data area and carrying disc definition structure information including positional information associated with the defect management information.

37. (Original) The recording medium as claimed in claim 21, wherein the recording medium is a Blu-ray Disc Write Once (BD-WO).

38-40. (Cancelled)

41. (Currently amended) An apparatus for managing a defective area on a recording medium of writable once type, the recording medium including a data area, the data area including at least one spare area, the apparatus comprising:

(a) means for detecting an existence of a defective area within the data area of the recording medium ~~once data are written onto the data area in a data writing operation;~~

(b) means for writing data written in the defective area onto ~~another area of the data area~~ a replacement area of the at least one spare area, if the defective area is detected; and

(c) means for writing, ~~onto at least one defect management area on the recording medium,~~ defect management information associated with the defective area onto at least one defect management area on the recording medium,

wherein the at least one defect management area on the recording medium is part of the at least one spare area within the data area of the recording medium.

42. (Cancelled)